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WATER SUPPLY OUTLOOK FOR WASHINGTON

Prepared by

U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
JUNE 1, 1972

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters of key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO NUMBER ORC 221-3

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702.
Montana	P. O. Box 970, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR WASHINGTON

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

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WATER SUPPLY OUTLOOK

State of Washington
June 1, 1972

* In spite of the excessive high water that has been experienced, *
* during the last of May and first of June, in certain portions *
* of the state the weather has been very favorable to an orderly *
* runoff. Periods of hot weather were followed by sub-normal *
* temperatures. This type of weather pattern, while extending *
* the runoff period reduces the maximum stages that could have *
* been experienced. Precipitation was above normal except on the *
* west side and in the Columbia drainage in Canada during May. *
* The greatest above normal, percentage-wise, occurred in the *
* North Central area that produced the high water. Lack of daily *
* temperature and rainfall records from the water-producing areas, *
* both in the United States and Canada, prevented the flood fore- *
* casting agencies from making earlier assessments of water stages *
* expected. The snow was in the mountains that could have pro- *
* duced much higher peaks than have already occurred. *
*
* Volumewise it appears that the forecasted flows will closely *
* approach the actual runoff both that which has occurred and *
* that which is yet to come. There is still plenty of snow at *
* the higher elevations which will tend to sustain flows during *
* the summer runoff season. *

SNOW COVER

There are not too many snow courses measured on May 15 and even fewer on June 1. Most of the snow courses below 4000 feet elevation are now bare except in the Cascade Range but in the areas where there is snow it is well-above average. The snow is very dense and any rain that falls on it flows out the bottom almost immediately while increasing the snow melt substantially. Most of the snow courses that do have a history of snow cover on June 1 have a snowpack that ranges from 150 percent to 300 percent of normal with a marked increase, percentage-wise, from that measured on May 15.

RESERVOIRS

Several of the irrigation and power reservoirs in the state have been filled, while most are still being held down for flood control. Reservoirs, like Coeur d'Alene Lake, with restricted outlet channels have filled involuntarily. Others have been operated to pass the greatest amount, without damage to the reaches below the dams, but inflows have brought them up to higher levels than wished. All reservoirs will fill and with the expected late-season runoff carry-over storage will be good.

PRECIPITATION

As stated above, precipitation during May was normal or above in all areas except for three drainage divisions, as reported by the National Weather Service. When combined with April rainfall only the central area of Yakima, Wenatchee and Chelan had below-normal rainfall and that only by four percent. The north central drainage division of the Methow and Okanogan drainages continues to have well above-normal valley precipitation.

STREAMFLOW

There was only one river, the Chehalis in southwestern Washington, considered in this report that had below normal runoff and this only by two percent. This resulted from the 34 percent below-normal precipitation which occurred in that area. All other rivers have reported above to well above-normal runoffs during May. The range on the main stem of the Columbia was 13 percent above at Birchbank to 28 percent above at The Dalles. High flows, 83 and 84 percent above normal, were experienced on the Similkameen and Okanogan Rivers during the month. Inflow to the five Yakima reservoirs was 51 percent above normal while the Walla Walla as measured at Touchet had flows 45 percent above normal. Even the Palouse River which drains north central Idaho and eastern Washington grain lands had a flow that was 46 percent above normal.

RESERVOIR STORAGE - 1000 Acre Feet

BASIN or STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (June)			
			1972	1971	1970	Normal*
<u>COLUMBIA</u>						
Spokane	Coeur d'Alene Lake	225.1	467.2	387.6	344.9	327.0
Columbia	Franklin D. Roosevelt Lake	5232.0	1722.0	2703.6	2141.4	3965.2
Columbia	Banks Lake	761.8	381.3	517.7	712.2	435.3
Okanogan	Conconully Reservoir	13.0	12.1	12.0	5.9	9.8
Okanogan	Salmon Lake	10.5	10.5	7.8	9.3	9.6
Chelan	Lake Chelan	676.1	481.3	461.4	309.6	467.6
<u>YAKIMA</u>						
Yakima	Keechelus Lake	157.8	138.2	143.0	144.6	144.8
Kachess	Kachess Lake	239.0	209.8	222.2	219.4	228.9
Cle Elum	Lake Cle Elum	436.9	319.1	378.1	328.8	395.8
Bumping	Bumping Lake	33.7	31.0	17.5	29.7	30.6
Tieton	Rimrock Lake	198.0	129.3	146.3	157.1	180.4
<u>PUGET SOUND</u>						
Skagit	Ross Reservoir	1404.1	1315.6	1323.1	890.8	1000.5
Skagit	Diablo Reservoir	90.6	88.9	87.8	86.5	84.1
Skagit	Gorge Reservoir	9.8	8.7	8.4	8.3	--

^{1/} Based on Active Storage

* 15-year average 1953-67

SOIL MOISTURE - JUNE

Drainage and Station	Number	Elev.	Profile Depth	(Inches):	Soil Moisture Content		
				Total : Capacity:	(Inches)as of June 1		
					1972	1971	1970
<u>CRAB CREEK</u>							
Jack Woods	18B3m	2750	48	13.6	10.2	9.6	8.5
Krause	18B4m	2420	48	13.6	9.0	8.7	8.7
Sheffels	18B5m	2380	48	13.6	9.9	9.1	8.6
Sherman	18B7m	2440	48	13.6	9.1	8.2	8.2
Wheatridge	18B6m	2290	48	13.6	10.0	--	8.4
<u>OKANOGAN</u>							
Salmon Meadows	19A2M	4500	48	5.4	3.7	3.6	3.7
Trout Creek	3-M	3600	48	7.3	5.6*	4.5	--
<u>YAKIMA</u>							
Domery Flat	21B20m	2200	48	6.9	4.5	4.5	4.4
Lake Cle Elum	21B14M	2200	48	12.8	9.2	9.2	9.2
<u>WALLA WALLA</u>							
Couse	17C3m	3650	48	11.1	10.2	9.8	9.8
Helmers	17C2M	4400	48	12.0	10.9	10.1	9.7
<u>WENATCHEE</u>							
Upper Wheeler	20B7M	4400	48	12.7	9.8	9.9	9.2

* May 1 measurement

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches):	Soil Moisture Content		
				Total : Capacity:	(Inches) as of Oct. 1		
					1971	1970	1969
<u>CRAB CREEK</u>							
Jack Woods	18B3m	2750	48	13.6	5.3	7.0	7.5
Krause	18B4m	2420	48	13.6	5.0	4.4	5.9
Sheffels	18B5m	2380	48	13.6	5.3	4.4	4.5
Sherman	18B7m	2440	48	13.6	4.0	3.8	4.2
Wheatridge	18B6m	2290	48	13.6	5.5	7.8	5.4
<u>OKANOGAN</u>							
Salmon Meadows	19A2M	4500	48	5.4	2.7	1.7	2.7
Trout Creek	3-M	3600	48	7.3	3.3	3.4*	3.8*
<u>YAKIMA</u>							
Domery Flat	21B20m	2200	48	6.9	2.1	2.4	--
Lake Cle Elum	21B14M	2200	48	12.8	7.1	7.6	--
<u>WALLA WALLA</u>							
Couse	17C3m	3650	48	11.1	6.2	5.9	6.1
Helmerts	18C2M	4400	48	12.0	8.2	7.3	7.1
<u>WENATCHEE</u>							
Upper Wheeler	20B7M	4400	48	12.7	6.5	5.1	9.8

* Nov 1 measurements

PRECIPITATION ^{1/}
Division Averages and Departures

DRAINAGE DIVISIONS	FALL		WINTER		SPRING	
	Sept-Oct 1971 ^{2/}		Nov. '71 - Mar. '72 ^{2/}		April-May '72 ^{2/}	
	Observed	- Departure	Observed	- Departure	Observed	- Departure
Columbia in Canada	4.45	+ 0.56	18.14	+ 5.45	3.21	+ .07
Pend Oreille - Spokane	4.63	+ 0.48	22.16	+ 3.91	4.82	+ .18
Northeastern Washington	3.16	+ 0.91	9.92	- 1.17	3.75	+ .43
Southeastern Washington	3.73	+ 1.08	15.47	+ 3.06	4.39	+ .78
Central Washington	4.15	- 0.29	39.29	+12.16	3.37	- .06
North Central Washington	1.99	+ 0.58	10.09	+ 3.75	2.99	+ 1.19
Northwest Slope Cascades	11.60	- 0.07	66.90	+14.76	11.25	+ 1.62
Southwest Slope Cascades	9.33	+ 1.61	54.96	+14.09	8.57	+ 1.53

Northeastern Washington	- Lower Spokane, Colville, Sanpoil and lower Kettle drainages.
Southeastern Washington	- Touchet, Tucannon and Palouse drainages
Central Washington	- Yakima, Wenatchee and Chelan drainages
North Central Washington	- Methow and Okanogan drainages
Northwest Slope Cascades	- Puget Sound drainages
Southwest Slope Cascades	- Lower Columbia drainages

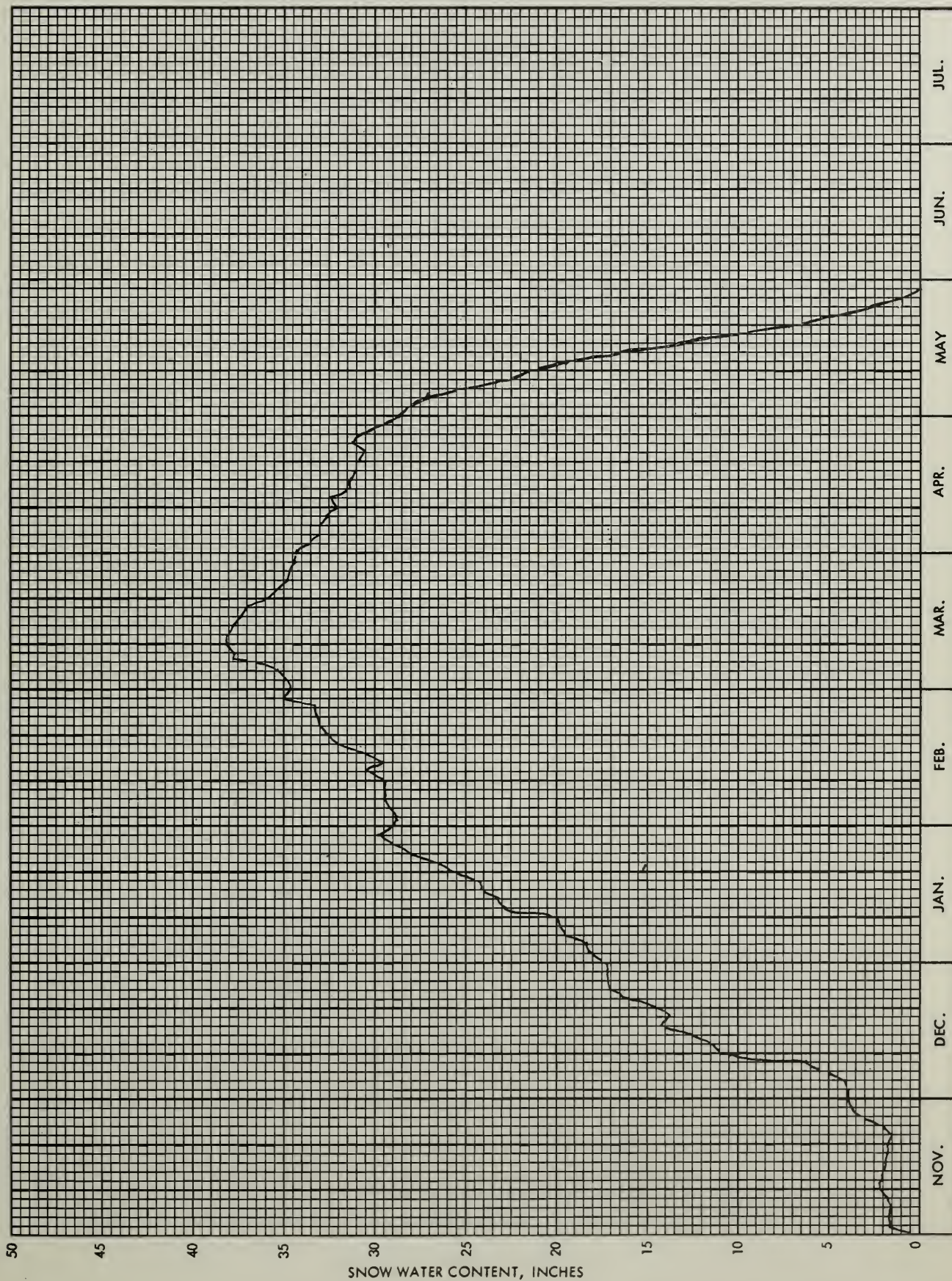
^{1/} - Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and National Weather Service

^{2/} - Departure from 15-year (1953-67) drainage division average

Berne-Mill Creek
SNOW PILLOW DATA

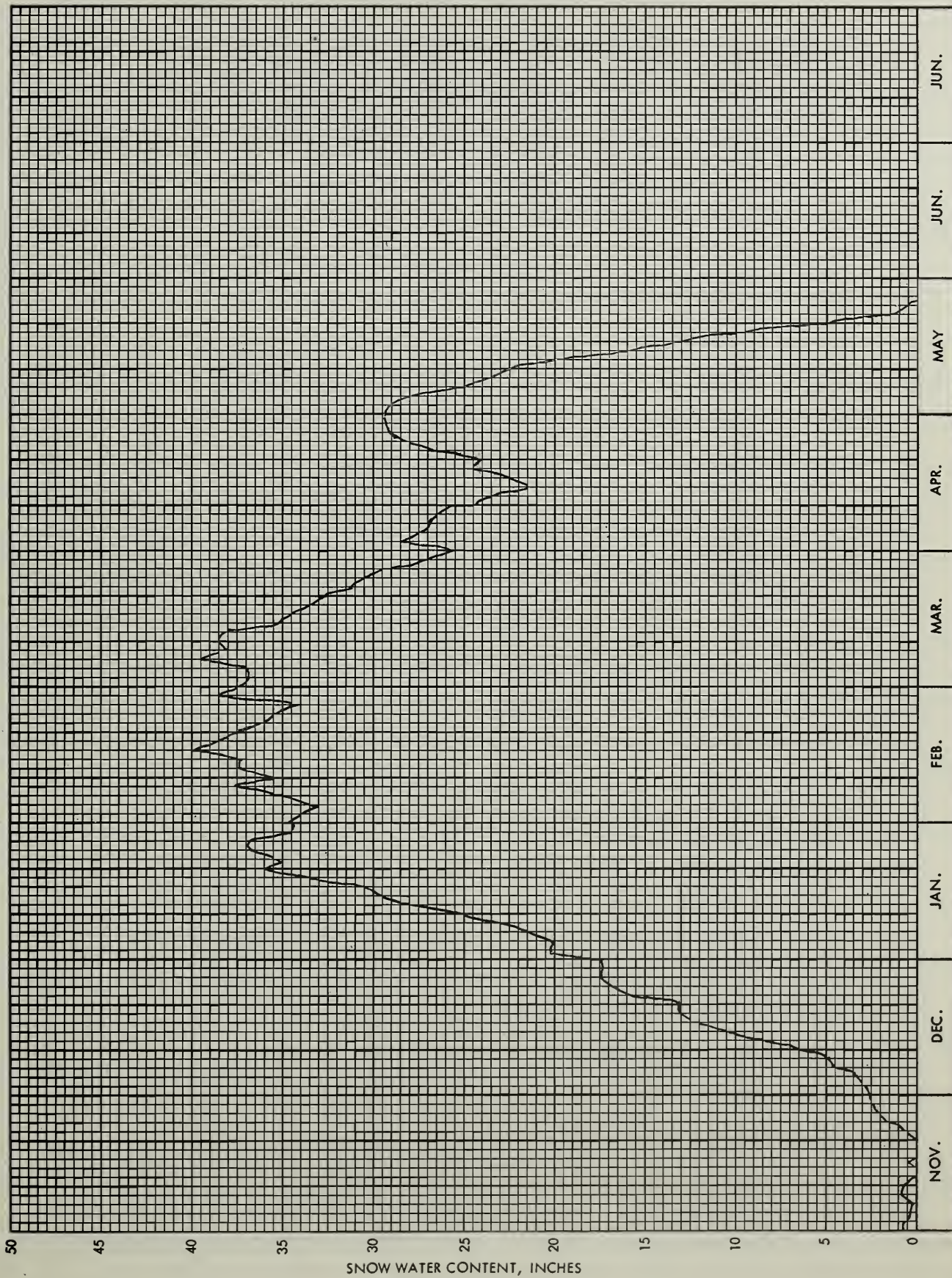
June 1, 1972

Sec. 13 T. 26N R. 14E No. 21B41SP Drainage: Wenatchee River
Lat. 47° 45' Long. 121° 42' Elev. 3240'



Cougar Mountain - FS
SNOW PILLOW DATA
June 1, 1972

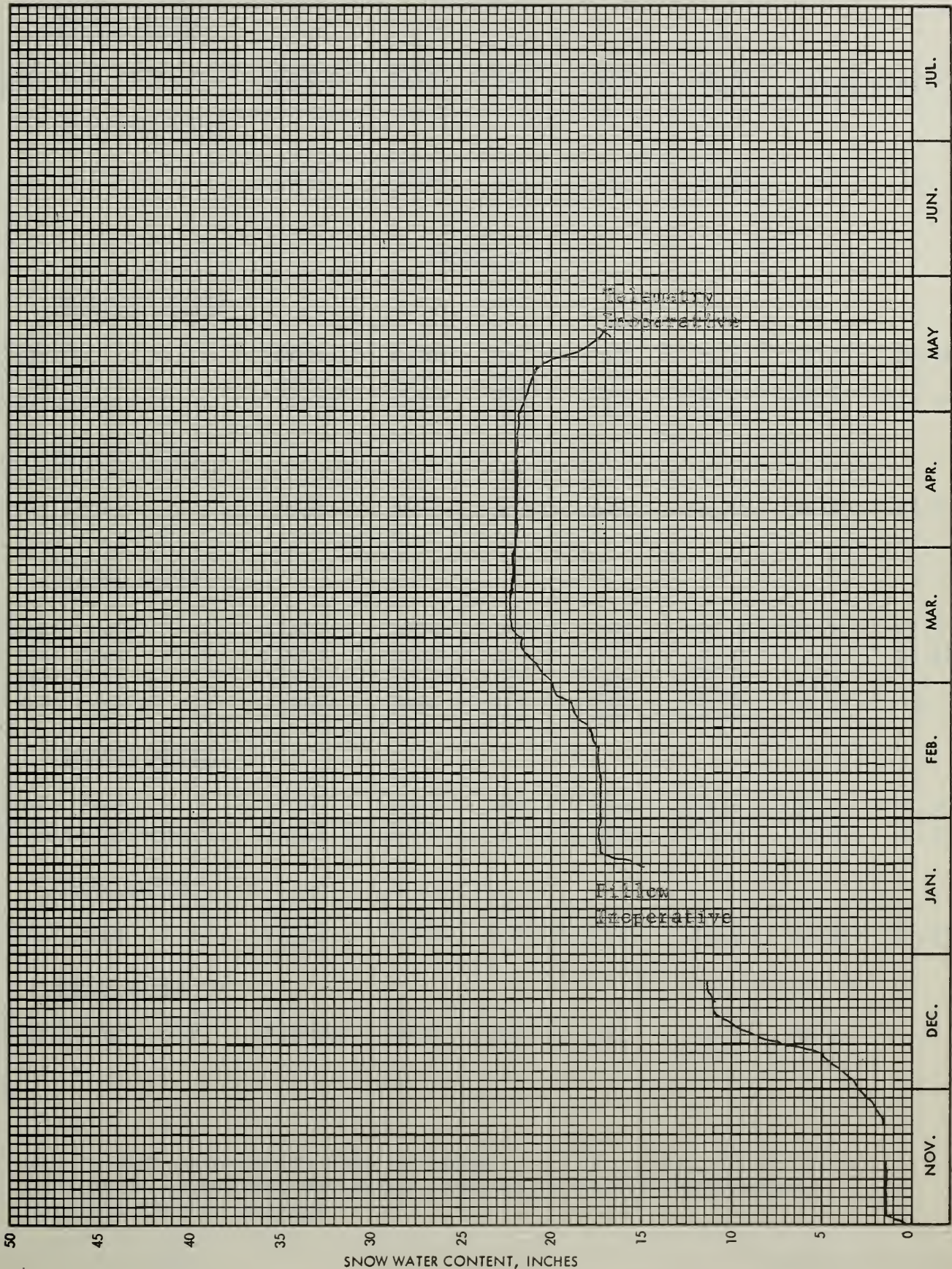
Sec. 21 T. 21N R. 9E No. 21B42SP Drainage: Green River
Lat. 47° 17' Long. 121° 40' Elev. 3200'



Trough No. 2
SNOW PILLOW DATA

June 1, 1972

Sec. 10 T. 20N R. 20E No. 20B259P Drainage: Wenatchee
Lat. 47° 14' Long. 120° 19' Elev. 5310'



APPENDIX 1
CORRECTIONS AND ADDITIONS - 1972 SNOW REPORTS

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	No.	Elevation				Last Year	Average ✓

February 1

ENTIAT RIVER

Four Mile Ridge +	20B27a	7000	2/1	108	34.6	New aerial	
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NOOKSACK RIVER

Glacier Creek	21A23	3700	2/3	87	32.8	--	--
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March 1

OKANOGAN RIVER

Clark +	19A8a	7000	3/1	90	29.7	22.7	18.0*
Muckamuck +	19A9a	6390	3/1	56	18.5	19.1	--
Starvation Mtn. +	19A10a	6750	3/1	66	21.8	20.5	17.7*

METHOW RIVER

Harts Pass	20A5A	6500	3/8	186	62.6	49.6	38.5
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YAKIMA RIVER

Bumping Lake	21C8	3450	3/1	61	20.4	22.8	15.3
#Corral Pass	21C13	6000	3/4	174	65.2	45.8	33.2*
Lemah Creek +	21B47a	3327	3/7	156	65.5	49.4	--
Waptus Lake +	21B49a	3024	3/7	165	69.3	54.2	--

COWLITZ RIVER

Cayuse Pass	21C6	5300	3/4	275	112.8	102.7	71.6*
Mosquito Meadows	21C19	4100	3/7	137	62.0	62.9	34.4*

WHITE RIVER

Corral Pass	21C13	6000	3/4	174	65.2	45.8	33.2*
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GREEN RIVER

Snowshoe Butte SP	21B43SP	5000	3/7	221	95.0	64.0	--
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- # Not located directly on this drainage
 + Snow water equivalent estimated from aerial stadia observation
 * Adjusted 1953-67 average

APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	NO.	Elevation				Last Year	Average <input checked="" type="checkbox"/>

March 1 (Cont.)SKAGIT RIVER

Beaver Creek Trail	21A4	2200	<u>3/8</u>	<u>65</u>	<u>24.3</u>	23.4	14.0*
Devils Park	20A4	5900	<u>3/8</u>	<u>192</u>	<u>68.6</u>	45.5	39.1
#Harts Pass	20A5A	6500	<u>3/8</u>	<u>186</u>	<u>62.6</u>	49.6	38.5

April 1OKANOGAN RIVER

Clark +	19A8a	7000	<u>4/1</u>	<u>96</u>	<u>35.5</u>	29.9	23.1*
Muckamuck +	19A9a	6390	<u>4/1</u>	<u>53</u>	<u>19.6</u>	21.1	17.5*
Starvation Mtn. +	19A10a	6750	<u>4/1</u>	<u>69</u>	<u>25.5</u>	23.5	22.7*

ENTIAT RIVER

<u>Four Mile Ridge +</u>	<u>20B27a</u>	<u>7000</u>	<u>3/15</u>	<u>120</u>	<u>52.8</u>	<u>New aerial</u>	
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BAKER RIVER

Mount Blum +	21A18a	5800	3/29	180	<u>86.4</u>	--	--
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May 1OKANOGAN RIVER

Muckamuck +	19A9a	6390	5/1	58	<u>26.7</u>	23.0	--
Starvation Mtn. +	19A10a	6750	5/1	78	<u>35.9</u>	27.1	25.1*

ENTIAT RIVER

<u>Four Mile Ridge +</u>	<u>20B27a</u>	<u>7000</u>	<u>4/15</u>	<u>108</u>	<u>51.8</u>	<u>New aerial</u>	
			<u>5/1</u>	<u>108</u>	<u>55.1</u>		
Shady Pass	20A37	5000	4/28	<u>106</u>	54.2	37.4	--

YAKIMA RIVER

Morse Lake	21C17	5400	4/27	183	<u>87.8</u>	102.6	62.4*
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Not located directly on this drainage

+ Snow water equivalent estimated from aerial stadia observation

* Adjusted 1953-67 average

SNOW DATA MAY 1 to JUNE 1, 1972

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	NO.	Elevation				Last Year	Average ✓

U P P E R C O L U M B I A D R A I N A G EPEND OREILLE RIVER

Baree Creek	15B11	5500	5/15	107	61.2	39.8	43.4
Baree Midway	15B16	4600	5/15	70	37.6	25.4	26.8
Baree Trail	15B15	3800	5/15	0	0.0	0.0	0.0
Heart Lake Trail	14C10	4800	5/16	50	26.2	14.0	--
			6/1	11	6.1	2.0	--
Hoodo Basin	15C10	6000	5/16	153	83.4	55.2	--
			6/1	110	63.4	42.3	--
Hoodo Creek	15C1	5900	5/16	145	79.2	52.7	42.5
			6/1	106	61.4	42.4	32.0
Lookout	15B2	5250	5/15	84	47.0	39.5	28.4
			6/1	46	25.3	18.2	--
Nelson	Canada	3050	5/12	5	2.4	1.0	0.8**
Schweitzer Bowl	16A6	4500	5/31	0	0.0	0.0	--
Schweitzer Ridge	16A5	6100	5/31	62	34.8	39.2	--

KETTLE RIVER

Big White Mountain	Canada	5500	5/14	53	23.0	17.9	17.6**
			5/30	22	11.4	11.2	9.3**
Carmi	Canada	4100	5/14	0	0.0	0.0	--
			Not Measured			0.0	--
Lower Trapping Cr.	Canada	3050	5/14	0	0.0	0.0	0.0**
			Not Measured			0.0	--
#Monashee Pass	Canada	4500	5/15	29	14.0	4.7	9.4**
			5/29	12	5.8	0.0	--
Old Glory Mountain	Canada	7000	5/13	80	33.6	25.6	28.8**
			5/27	61	31.1	15.9	17.6**
Upper Trapping Cr.	Canada	5500	5/14	0	0.0	0.0	0.6**
			Not Measured			0.0	--

SPOKANE RIVER

Granite Peak	15B13A	6000	5/28	116	57.4	46.0	--
#Lookout	15B2	5250	5/15	84	47.0	39.5	--
			6/1	46	25.3	18.2	--
Lost Lake	15B14A	6000	5/28	161	83.0	55.0	--
Medicine Ridge	15B4A	6150	5/28	121	61.0	45.4	--

Not located directly on this drainage

** Average for years of record

APPENDIX 4

SNOW

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	No.	Elevation				Last Year	Average ✓
<u>OKANOGAN RIVER</u>							
Blackwall Peak	Canada	6250	5/11	124	61.0	43.5	36.6**
			5/30	90	49.8	39.0	28.7**
Bouleau Lake	Canada	4500	5/28	17	4.6	--	--
Bouleau Creek	Canada	5000	5/14	27	10.7	--	5.5**
Brookmere	Canada	3200	5/15	18	8.2	2.0	2.3**
			5/30	0	0.0	2.0	--
Enderby	Canada	6250	5/8	132	55.6	46.8	44.5**
			5/29	101	48.9	38.3	39.9**
Hamilton Hill	Canada	4900	5/27	29	15.8	0.0	1.0**
Isontok Lake	Canada	5510	5/13	35	15.1	1.0	3.3**
			5/27	18	8.3	--	--
Lost Horse Mountain	Canada	6300	5/11	58	22.7	8.2	9.6**
			Late Report			4.2	3.5**
Lower Esperon Cr.	Canada	4270	5/15	17	7.2	0.0	0.2**
			5/27	0	0.0	0.0	--
McCulloch	Canada	4200	5/10	4	1.4	0.0	0.6**
			5/25	0	0.0	--	--
Middle Esperon Cr.	Canada	4580	5/15	23	9.8	4.6	2.5**
			5/27	0	0.0	--	--
Missezula Mountain	Canada	5100	5/27	0	0.0	--	0.0
Mission Creek	Canada	6000	5/12	65	27.4	17.5	18.8**
			5/26	44	21.7	15.3	11.1**
Monashee Pass	Canada	4500	5/15	29	14.0	4.7	9.4**
			5/29	12	5.8	0.0	1.9**
Mount Kobau	Canada	5950	5/15	42	17.0	9.7	9.7**
			6/1	16	5.4	1.1	1.7**
New Copper Mountain	Canada	4300	5/11	3	1.3	--	--
New Penticton Res.	Canada	6200	5/12	32	13.0	--	--
Nickel Plate Mtn.	Canada	6200	5/14	41	15.8	4.6	6.4**
			5/30	24	10.6	2.3	4.6**
Postill Lake	Canada	4500	5/11	17	7.1	--	3.8**
#Quartette Lake	Canada	4000	5/26	37	18.5	--	--
Silver Star Mtn.	Canada	6050	5/13	82	40.0	22.5	25.1**
			5/27	60	32.6	13.9	14.4**
Summerland Res.	Canada	4200	5/13	18	8.6	0.7	1.7**
			5/27	1	0.6	--	--
Trout Creek	Canada	4700	5/11	30	12.1	0.7	1.2**
			5/24	10	4.5	--	--
Brenda Mine	Canada	4800	5/12	30	14.5	0.0	0.0**
			Late Report			0.0	0.0**

Not located directly on this drainage

** Average for years of record

✓ Average based on 1953-67 average.

APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	No.	Elevation				Last Year	Average ^{1/}

OKANOGAN RIVER (Cont.)

Upper Esperon Cr.	Canada	5290	5/27	21	10.5	--	--
White Rocks Mtn.	Canada	6000	5/12	68	32.5	--	--
			5/26	44	22.3	--	--
Vaseux Cr.	Canada	4050	5/14	4	1.0	--	--

ENTIAT RIVER

Entiat Meadows +	20A33a	4800	5/16	94	49.8	47.6	--
			5/31	70	42.0	32.9	--
Entiat River Trail +	20A34a	3150	5/16	0	0.0	6.0	--
			5/31	0	0.0	0.0	--
Four Mile Ridge +	20B27a	7000	5/10	102	54.1	New aerial	
			5/31	60	36.0	--	--
Fox Camp +	20A36a	6510	5/16	156	82.7	69.4	--
			5/31	122	73.2	67.8	--
Pope Ridge	20B20	4300	5/12	6	3.3	2.5	--
			Not Measured			0.0	--
Pugh Ridge +	20A32a	6400	5/16	101	53.5	30.3	--
			5/31	75	45.0	24.9	--
Shady Pass	20A37	5000	5/15	86	45.5	19.6	--
			6/1	45	27.0	--	--
Snow Brushy +	20A33a	3850	5/16	60	31.8	30.3	19.9*
			5/31	33	19.8	16.2	--
Tommy Creek +	20B21a	5300	5/16	26	13.8	12.9	9.2*
			5/31	12	7.2	2.8	--

WENATCHEE RIVER

Berne-Mill Creek	21B23	2925	5/26	26	14.8	--	--
Stevens Pass	21B1	4070	5/15	142	80.1	68.1	46.6
			5/26	124	75.9	58.6	31.2*
Stevens Pass S. Shed	21B45	3700	5/15	74	42.5	34.5	--
			5/26	56	32.8	24.7	--

YAKIMA RIVER

Bumping Lake	21C8	3450	5/14	8	4.4	10.5	--
Bumping Lake New	21C36	3400	5/14	20	11.4	16.9	--

+ Snow water equivalent estimated from aerial stadia observation

* Adjusted 1953-67 average

APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	No.	Elevation				Last Year	Average ✓

YAKIMA RIVER (Cont.)

Joe Lake +	21B46a	4624	5/30	204	120.4	--	--
Lemah Creek +	21B47a	3327	5/30	27	15.9	--	--
#Olallie Meadows	21B2	3625	Not Measure			66.3	--
#Stampede Pass	21B10	3000	5/15	118	45.0	57.2	34.8
			6/1	76	43.6	42.4	18.5*
Tunnel Avenue	21B8	2450	5/16	39	19.5	20.8	--
			5/31	6	3.4	--	--
Van Epps Pass +	20B26a	5925	5/30	144	85.0	--	--
Waptus Lake +	21B49a	3024	5/30	45	26.6	--	--
White Pass E. Side	21C28	4500	5/15	84	46.1	31.6	23.0*
			6/1	53	33.1	--	12.7*
White Pass L. Lake	21C27	4500	Not Measured			31.5	

COWLITZ RIVER

Pigtail Peak	21C33	5900	5/15	208	119.2	93.8	--
			6/1	171	103.8		
#White Pass E. Side	21C28	4500	5/15	84	46.1	31.6	23.0*
			6/1	53	33.1	--	12.7*
#White Pass L. Lake	21C27	4500	Not Measured			31.5	

PUGET SOUND DRAINAGEGREEN RIVER

Cougar Mtn. SP	21B42SP	3200	Not Measured			5.2	--
Snowshoe Butte SP	21B43SP	5000	Not Measured			76.6	--
Stampede Pass	21B10	3000	5/15	118	45.0	57.2	34.8
			6/1	76	43.6	42.4	18.5*

SNOQUALMIE RIVER

Olallie Meadows	21B2	3625	Not Measured			66.3	--
-----------------	------	------	--------------	--	--	------	----

SKYKOMISH RIVER

#Stevens Pass	21B1	4070	5/15	142	80.1	68.1	46.6
			5/26	124	75.9	58.6	31.2*
#Stevens Pass S. Shed	21E45	3700	5/15	74	42.5	34.5	--
			5/26	56	32.8	24.7	--

+ Snow water equivalent estimated from aerial stadia observation

Not located directly on this drainage

* Adjusted 1953-67 average

✓ Average based on 1953-67 average.

APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	No.	Elevation				Last Year	Average ^{1/}

SKAGIT RIVER

Klesilkwa	Canada	3700	5/15	38	19.3	--	--
New Tashme	Canada	2500	5/11	18	8.3	--	--
Quartette Lake	Canada	4000	5/13	49	21.4	--	--
			5/26	37	18.5	--	--

BAKER RIVER

Baker Pass +	21A27	4900	Not Measured			--	--
Dock Butte +	21A11A	3800	Not Measured			--	82.9*
			5/31	140	77.0	--	66.1*
Easy Pass	21A7A	5200	Not Measured			--	108.0*
			5/31	168	92.4	--	--
Jasper Pass	21A6A	5400	Not Measured			--	112.7*
			5/31	140	77.0	--	--
Marten Lake	21A9A	3600	Not Measured			--	76.3*
			5/31	165	90.8	--	65.1*
Mount Blum +	21A18a	5800	Not Measured			--	--
			5/31	150	82.5	--	--
Rocky Creek +	21A12A	2100	Not Measured			--	--
			5/31	0	0.0	--	--
Schreibers Meadow +	21A10A	3400	Not Measured			--	69.8*
			5/31	130	71.5	--	--
S. F. Thunder Creek +	21A14A	2200	Not Measured			--	--
						--	--
Watson Lakes +	21A8A	4500	Not Measured			--	81.7*
			5/31	144	79.2	--	68.8*

^{1/} Average based on 1953-67 average.

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
NOAA, National Weather Service
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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